

COASTAL COMMUNITIES OCEAN ACIDIFICATION ACT OF
2019

MAY 23, 2019.—Committed to the Committee of the Whole House on the State of
the Union and ordered to be printed

Ms. JOHNSON of Texas, from the Committee on Science, Space, and
Technology, submitted the following

R E P O R T

[To accompany H.R. 1716]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, Space, and Technology, to whom was referred the bill (H.R. 1716) to direct the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration, to conduct coastal community vulnerability assessments related to ocean acidification, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

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I. AMENDMENT

The amendment is as follows:

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the “Coastal Communities Ocean Acidification Act of 2019”.

SEC. 2. STATE AND UNITED STATES DEFINED.

Section 12403 of the Federal Ocean Acidification Research And Monitoring Act of 2009 (33 U.S.C. 3702) is amended—

(1) by redesignating paragraph (3) as paragraph (4);

(2) by inserting after paragraph (2) the following:

“(3) STATE.—The term ‘State’ means each State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, the Virgin Islands of the United States, and any other territory or possession of the United States.”; and

(3) by adding at the end the following:

“(5) UNITED STATES.—The term ‘United States’ means the States, collectively.”.

SEC. 3. COASTAL COMMUNITY VULNERABILITY ASSESSMENT.

(a) IN GENERAL.—Section 12406 of the Federal Ocean Acidification Research And Monitoring Act of 2009 (33 U.S.C. 3705) is amended—

(1) by redesignating subsection (b) as subsection (d); and

(2) by inserting after subsection (a) the following:

“(b) COMMUNITY VULNERABILITY ASSESSMENT.—

“(1) IN GENERAL.—The Secretary, through the program established under subsection (a), shall conduct an ocean acidification coastal community vulnerability assessment, and issue a corresponding public report, which shall be updated at least once every 7 years.

“(2) REQUIREMENTS.—The assessment conducted under paragraph (1) shall—

“(A) identify the United States coastal communities, including island communities, low-population rural communities, and subsistence communities, that are most dependent on coastal and ocean resources that may be impacted by ocean acidification;

“(B) assess the nature of the social and economic vulnerabilities of those communities, including the economic impact on local or regional commercial fisheries and recreational opportunities;

“(C) identify the ocean acidification impacts that might harm those communities, including impacts from changes in ocean and coastal marine resources that are not managed by the Federal Government;

“(D) identify key knowledge gaps where research could be devoted to better understand the possible impacts of ocean acidification on those communities, the risks and threats facing those communities, and possible adaptation strategies for those communities; and

“(E) be conducted in collaboration with experts, indigenous knowledge groups, and stakeholders who are familiar with the unique economic, social, ecological, geographic, and resource concerns of coastal communities in the United States, including representatives of—

“(i) the National Marine Fisheries Service and the Office for Coastal Management of the National Oceanic and Atmospheric Administration;

“(ii) National Integrated Coastal and Ocean Observation System regional information coordination entities established under section 12304(c)(4) of the Integrated Coastal and Ocean Observation System Act of 2009 (33 U.S.C. 3603(c)(4));

“(iii) regional ocean acidification networks; and

“(iv) State sea grant programs (as defined in section 203 of the National Sea Grant College Program Act (33 U.S.C. 1122)).

“(c) SUPPORT FOR STATE AND LOCAL VULNERABILITY ASSESSMENTS AND STRATEGIC RESEARCH PLANNING.—In carrying out the program established under subsection (a), the Secretary shall collaborate with State, local, and tribal government entities that are conducting or have completed vulnerability assessments, strategic research

planning, or other similar activities related to ocean acidification and its impacts on coastal communities, for the purpose of—

- “(1) determining whether such activities can be used as a model for other communities; and
 - “(2) identifying opportunities for the National Oceanic and Atmospheric Administration and other relevant Federal agencies to support such activities.”.
- (b) ONGOING INPUT MECHANISM.—Section 12404(b)(5) of the Federal Ocean Acidification Research And Monitoring Act of 2009 (33 U.S.C. 3703(b)(5)) is amended—

- (1) by striking “including information” and inserting the following: “including—
 - “(A) information”;
 - (2) by striking the period at the end and inserting “; and”; and
 - (3) by adding at the end the following:
 - “(B) an ongoing mechanism that allows affected industry members, coastal stakeholders, non-Federal resource managers, community acidification networks, indigenous knowledge groups, and scientific experts not employed by the Federal Government to provide input on research, data, and monitoring that is necessary to support on-the-ground management, decision-making, and adaptation related to ocean acidification and its impacts.”.
- (c) STRATEGIC RESEARCH PLAN.—Section 12405 of the Federal Ocean Acidification Research And Monitoring Act of 2009 (33 U.S.C. 3704) is amended—
- (1) in subsection (b)—
 - (A) in paragraph (8), by striking “and” after the semicolon;
 - (B) in paragraph (9), by striking the period at the end and inserting “; and”; and
 - (C) by adding at the end the following:
 - “(10) make recommendations for research that should be conducted, including in the social sciences and economics, to address the key knowledge gaps identified in the community vulnerability assessment report conducted under section 12406(b).”; and
 - (2) in subsection (e), by inserting “, tribal governments, indigenous knowledge groups,” after “industry”.

(d) AUTHORIZATION OF APPROPRIATIONS.—Section 12409(a) of the Federal Ocean Acidification Research And Monitoring Act of 2009 (33 U.S.C. 3708(a)) is amended to read as follows:

“(a) NOAA.—There are authorized to be appropriated to the National Oceanic and Atmospheric Administration to carry out the purposes of this subtitle \$2,700,000 for each of fiscal years 2020 through 2024.”.

(e) REPORT ON SUPPORT FOR STATE AND LOCAL VULNERABILITY ASSESSMENTS AND STRATEGIC RESEARCH PLANNING.—Not later than 180 days after the date of the enactment of this Act, the Administrator of the National Oceanic and Atmospheric Administration shall submit to Congress a report on the efforts of the National Oceanic and Atmospheric Administration to support State, local, and tribal community vulnerability assessments, strategic research and planning, and monitoring needs, pursuant to section 12406(c) of the Federal Ocean Acidification Research And Monitoring Act of 2009 (as added by subsection (a) of this section).

II. PURPOSE OF THE BILL

The purpose of H.R. 1716, sponsored by Rep. Pingree, is to direct the National Oceanic and Atmospheric Administration (NOAA) to study the socioeconomic impacts of ocean acidification on coastal communities across the United States. The bill is cosponsored by Representatives Bonamici, Buchanan, Crist, Gabbard, Golden, González-Colón, Huffman, King, Larsen, McGovern, Panetta, Rooney, Roybal-Allard, Thompson, Waltz, Wexton, and Young.

III. BACKGROUND AND NEED FOR THE LEGISLATION

Ocean acidification is a global phenomenon of the gradual decrease in oceanic pH primarily from the absorption of excess carbon dioxide in the atmosphere. Under a higher emissions scenario, global mean surface acidity is expected to increase by 100–150 percent

by the end of the century.¹ However, acidification is occurring faster in some U.S. coastal regions as a result of upwelling of naturally low pH water (Pacific Northwest), changes in freshwater inputs (Gulf of Maine), and high nutrient inputs (for example, in agricultural watersheds).²

Ocean acidification is a growing problem for coastal communities and economies that are dependent on ocean resources. Coastal economies contribute significantly to the nation's gross domestic product (GDP). According to NOAA, fourteen percent of U.S. counties that are adjacent to the coasts produce 45 percent of the nation's GDP, with nearly three million jobs directly dependent on ocean and coastal resources. Some coastal economies in the United States have already been negatively impacted by ocean acidification. One of the earliest examples was the near collapse of the Pacific Northwest shellfish hatchery industry in the mid-2000s. Low pH water was linked to mortality of shellfish larvae in the region, causing local commercial hatchery failures and associated major economic losses.³ The hatcheries have been able to improve shellfish growth by treating the water to raise the pH levels for the larvae.

There is a growing need to understand the social and economic effects of ocean acidification in order to better help communities prepare and respond to it. Regions that are vulnerable to ocean acidification can be used to test adaptation and mitigation strategies to manage and adapt to ocean acidification.

Recognizing this need, NOAA began funding regional vulnerability assessments for ocean acidification in the mid-2010s and has thus far completed parts of assessments for several regions. However, NOAA does not have dedicated funds for vulnerability assessments, and the funds come out of the Ocean Acidification Program's limited programmatic funds. H.R. 1716 would authorize and enhance NOAA's ocean acidification vulnerability assessments for low lying coastal communities, island communities, and other communities that are most dependent on ocean and coastal resources and identify research gaps and socioeconomic impacts, in order to support resource managers and decision makers in developing adaptation and mitigation strategies.

IV. COMMITTEE HEARINGS

For the purposes of section 103(i) of H.Res. 6 of the 116th Congress, the following hearings were used to develop the legislation:

On March 7, 2019, the Honorable Lizzie Fletcher presiding over the Environment Subcommittee of the Committee on Science, Space, and Technology held a hearing focused on climate change impacts on our nation's oceans and coasts, where ocean acidification was discussed as a major associated impact. There were four witnesses: (1) Dr. Sarah Cooley, Director of the Ocean Acidification Program at Ocean Conservancy. Dr. Cooley provided testimony on the science of ocean warming, acidification, and deoxygenation and resulting impacts to marine ecosystems and humans. (2) Dr. Radley Horton, Lamont Associate Research Professor at Columbia

¹National Climate Assessment 4; Volume I; Ch. 13

²NCA4; Volume I; Ch. 13

³Phys.org. December 16, 2014. "Ocean acidification a culprit in commercial shellfish hatcheries' failures." <https://phys.org/news/2014-12-ocean-acidification-culprit-commercial-shellfish.html>

University Earth Institute's Lamont-Doherty Earth Observatory. Dr. Horton testified on sea level rise projections and impacts to coastal communities. (3) Dr. Thomas K. Frazer, Professor and Director of the School of Natural Resources and Environment at the University of Florida. Dr. Frazer testified on the impacts of climate change to fisheries and the need for increased federal investment in research to promote adaptation and mitigation to those changes. (4) Ms. Margaret A. Pilaro, Executive Director of the Pacific Coast Shellfish Growers Association. Ms. Pilaro provided testimony on the impacts of ocean acidification and deoxygenation to shellfish hatcheries and strategies for how their industry has started to adapt.

V. COMMITTEE CONSIDERATION AND VOTES

As summarized in Section IV of this report, the Subcommittee on Environment heard testimony in the 116th Congress relevant to the activities authorized in H.R. 1716 at a hearing held on February 27, 2019.

On March 13, 2019, Representative Chellie Pingree, for herself and Representatives Rooney of Florida, Mr. Huffman of California, Ms. Bonamici of Oregon, Mr. King of New York, Mr. Young, and Mr. Thompson of California introduced H.R. 1716, the Coastal Communities Ocean Acidification Act of 2019, to direct the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration, to conduct coastal community vulnerability assessments related to ocean acidification, and for other purposes.

On April 9, 2019, the Subcommittee on Environment met to consider H.R. 1716 and three other ocean acidification bills. There were no amendments offered to H.R. 1716.

Ms. Fletcher moved that the Subcommittee favorably report H.R. 1716 to the Full Committee. The motion was agreed to by a voice vote.

The Committee on Science, Space, and Technology met to consider H.R. 1716 on Wednesday, May 1, 2019 and considered the following amendments to the bill:

1. Ms. Johnson offered an amendment in the nature of a substitute that strikes and replaces the bill with the entire text of the Senate companion, S. 778. The Senate bill, sponsored by Senator Murkowski, has a few technical differences from the original text of H.R. 1716. In addition, it includes references to tribal governments and adds three key expert groups to the list of entities required to participate in the regional vulnerability assessments.

2. Ms. González-Colón offered an amendment to include a state definition to clarify the inclusion of five U.S. territories in the bill. The amendment was agreed to by a voice vote.

3. Ms. Wexton offered an amendment to add the economic impact on commercial fisheries and outdoor recreation to the assessment by NOAA on the vulnerabilities of communities affected by ocean acidification. The amendment was agreed to by a voice vote.

4. Ms. Bonamici offered an amendment to provide NOAA with an increase in funding of \$2.7 million annually above the current spending level for these studies, for the fiscal years 2020 through 2024. The amendment was agreed to by a voice vote.

Ms. Johnson moved that the Committee vote on the amendment in the nature of a substitute, with the inclusion of all the other amendments, which had all been agreed to. The substitute was adopted by a voice vote.

Ms. Johnson moved that the Committee favorably report the bill, H.R. 1716, as amended, to the House with the recommendation that the bill be approved. The motion was agreed to by a voice vote.

VI. SUMMARY OF MAJOR PROVISIONS OF THE BILL

H.R. 1716 directs the National Oceanic and Atmospheric Administration (NOAA) to study the socioeconomic impacts of ocean acidification on coastal communities across the United States. The bill authorizes appropriations for NOAA of \$2.7 million annually for each of the fiscal years 2020 through 2024.

VII. SECTION-BY-SECTION ANALYSIS (BY TITLE AND SECTION)

Section 1. Short title

Coastal Communities Ocean Acidification Act of 2019.

Section 2. Coastal community vulnerability assessment

This section amends the Federal Ocean Acidification Research and Monitoring (FOARAM) Act of 2009 to require the Secretary of Commerce to conduct studies to identify which communities are most dependent on ocean resources and how ocean acidification would affect them. The community vulnerability assessment and corresponding public report must be updated at least once every seven years and must identify the coastal communities that are most dependent on coastal and ocean resources, ocean acidification impacts to those vulnerable communities, and key knowledge gaps and potential adaptation strategies, and involve collaboration with appropriate experts. NOAA is directed to collaborate with state and local governments that are already conducting vulnerability assessments or similar ocean acidification activities to identify opportunities for NOAA to support those efforts and potentially create a model for other communities.

This section also creates a mechanism for affected coastal industries, resource managers, and other non-federal stakeholders to provide input on federal ocean acidification research and activities and requires NOAA to submit a report on its efforts to support community vulnerability assessments 180 days after enactment of the bill.

Finally, this section includes an authorization of appropriations of \$2.7 million per year for each of the fiscal years 2020 through 2024 to carry out the provisions of this bill.

VIII. COMMITTEE VIEWS

Since the passage of the Federal Ocean Acidification Research and Monitoring Act (FOARAM) of 2009, the federal investment in ocean acidification research has led to substantial increases in our understanding of the chemical changes in the ocean from the absorption of excess anthropogenic carbon dioxide in the atmosphere and the resulting impacts on certain marine species. For example, it has been discovered that certain shelled and calcified marine or-

ganisms (i.e. oysters, clams, mussels, corals) are particularly sensitive to ocean acidification. However, the ecological and ecosystem impacts of ocean acidification are much less understood, and so, too, are the impacts on human communities that are dependent on ocean and coastal resources. The Committee views ocean acidification vulnerability assessments to be important synthesis documents on the projected impacts of ocean acidification to dependent human communities and provide decision support to help those communities adapt to changing conditions.

Since its inception in 2009, the NOAA Ocean Acidification Program has been investing in research on the socioeconomic impacts of ocean acidification in certain regions of the United States, in addition to the underlying science of ocean acidification, including changes in chemical conditions and the response of species and ecosystems, in accordance with requirements under the FOARAM Act. The Committee views NOAA as the lead federal agency in ocean acidification research and believes that NOAA is ideally equipped with the tools and expertise to conduct these vulnerability assessments, and should do so in cooperation with state, local, and tribal governments and the appropriate experts. H.R. 1716 will support and enhance NOAA's current efforts to assess the socioeconomic impacts of ocean acidification. The Committee believes that these assessments will help vulnerable communities adapt to ocean acidification to prevent or minimize the negative economic effects on economically important fisheries, recreation, and other ocean-based aspects of coastal economies.

The amendments offered and agreed to in the Full Committee markup were based on stakeholder feedback, including feedback from NOAA, after bill introduction. The Committee believes that these amendments make improvements to the bill, including offering an authorization of appropriation for the bill at a level that is above what NOAA currently spends on conducting vulnerability assessments. This amount will support and enhance NOAA's existing efforts and will lead to increased geographic coverage of vulnerability assessments.

IX. COST ESTIMATE

Pursuant to clause 3(c)(2) of rule XIII of the Rules of the House of Representatives, the Committee adopts as its own the estimate of new budget authority, entitlement authority, or tax expenditures or revenues contained in the cost estimate prepared by the Director of the Congressional Budget Office pursuant to section 402 of the Congressional Budget Act of 1974.

X. CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, May 10, 2019.

Hon. EDDIE BERNICE JOHNSON,
Chairwoman, Committee on Science, Space, and Technology,
House of Representatives, Washington, DC.

DEAR MADAM CHAIRWOMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 1716, the Coastal Communities Ocean Acidification Act of 2019.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Robert Reese.

Sincerely,

KEITH HALL,
Director.

Enclosure.

H.R. 1716, Coastal Communities Ocean Acidification Act of 2019			
As ordered reported by the House Committee on Science, Space, and Technology on May 1, 2019			
By Fiscal Year, Millions of Dollars	2019	2019-2024	2019-2029
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Deficit Effect	0	0	0
Spending Subject to Appropriation (Outlays)	0	12	14
Pay-as-you-go procedures apply?	No	Mandate Effects	
Increases on-budget deficits in any of the four consecutive 10-year periods beginning in 2030?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

H.R. 1716 would authorize the appropriation of \$2.7 million annually over the 2020–2024 period for the National Oceanic and Atmospheric Administration (NOAA) to implement its Ocean Acidification Program. The bill would require NOAA to:

- Assess coastal communities’ vulnerability to ocean acidification,
- Recommend research to address key knowledge gaps in that assessment, and
- Allow citizens to provide input on ocean acidification research, data, and monitoring.

CBO estimates that implementing H.R. 1716 would cost \$12 million over the 2020–2024 period and \$2 million after 2024, assuming appropriation of the authorized amounts. In 2019, NOAA allocated \$12 million to the Ocean Acidification Program. The costs of the legislation, detailed in Table 1, fall into budget function 300 (natural resources and environment).

TABLE 1.—ESTIMATED INCREASES IN SPENDING SUBJECT TO APPROPRIATION UNDER H.R. 1716

	By fiscal year, millions of dollars—						
	2019	2020	2021	2022	2023	2024	2019–2024
Authorization	0	3	3	3	3	3	14
Estimated Outlays	0	2	2	3	3	3	12

Components may not sum to totals because of rounding.

The CBO staff contact for this estimate is Robert Reese. The estimate was reviewed by H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

XI. FEDERAL MANDATES STATEMENT

H.R. 1716 contains no unfunded mandates.

XII. COMMITTEE OVERSIGHT FINDINGS AND RECOMMENDATIONS

The Committee's oversight findings and recommendations are reflected in the body of this report.

XIII. STATEMENT ON GENERAL PERFORMANCE GOALS AND OBJECTIVES

The goals of H.R. 1716 are to require NOAA to conduct assessments of the socioeconomic impacts of ocean acidification on vulnerable coastal communities of the United States in order to improve understanding of impacts and help communities adapt to those changes. The bill has two reporting requirements: the first is a public report that is to be issued with the vulnerability assessments. The second is a report to Congress on the efforts of NOAA to support vulnerability assessments and strategic research planning.

XIV. FEDERAL ADVISORY COMMITTEE STATEMENT

H.R. 1716 does not create any advisory committees.

XV. DUPLICATION OF FEDERAL PROGRAMS

Pursuant to clause 3(c)(5) of rule XIII of the Rules of the House of Representatives, the Committee finds that no provision of H.R. 1716 establishes or reauthorizes a program of the federal government known to be duplicative of another federal program, including any program that was included in a report to Congress pursuant to section 21 of Public Law 111-139 or the most recent Catalog of Federal Domestic Assistance.

XVI. EARMARK IDENTIFICATION

Pursuant to clause 9(e), 9(f), and 9(g) of rule XXI, the Committee finds that H.R. 1716 contains no earmarks, limited tax benefits, or limited tariff benefits.

XVII. APPLICABILITY TO THE LEGISLATIVE BRANCH

The Committee finds that H.R. 1716 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Public Law 104-1).

XVIII. STATEMENT ON PREEMPTION OF STATE, LOCAL, OR TRIBAL LAW

This bill is not intended to preempt any state, local, or tribal law.

XIX. CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3(e) of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, and existing law in which no change is proposed is shown in roman):

**FEDERAL OCEAN ACIDIFICATION RESEARCH AND
MONITORING ACT OF 2009**

* * * * *

**TITLE XII—NOAA UNDERSEA RESEARCH
PROGRAM ACT OF 2009**

* * * * *

**Subtitle D—Federal Ocean Acidification
Research and Monitoring Act of 2009**

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SEC. 12403. DEFINITIONS.

In this subtitle:

(1) **OCEAN ACIDIFICATION.**—The term “ocean acidification” means the decrease in pH of the Earth’s oceans and changes in ocean chemistry caused by chemical inputs from the atmosphere, including carbon dioxide.

(2) **SECRETARY.**—The term “Secretary” means the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration.

(3) **STATE.**—*The term “State” means each State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, the Virgin Islands of the United States, and any other territory or possession of the United States.*

[(3)] (4) **SUBCOMMITTEE.**—The term “Subcommittee” means the Joint Subcommittee on Ocean Science and Technology of the National Science and Technology Council.

(5) **UNITED STATES.**—*The term “United States” means the States, collectively.*

SEC. 12404. INTERAGENCY SUBCOMMITTEE.

(a) **DESIGNATION.**—

(1) **IN GENERAL.**—The Joint Subcommittee on Ocean Science and Technology of the National Science and Technology Council shall coordinate Federal activities on ocean acidification and establish an interagency working group.

(2) **MEMBERSHIP.**—The interagency working group on ocean acidification shall be comprised of senior representatives from the National Oceanic and Atmospheric Administration, the National Science Foundation, the National Aeronautics and Space Administration, the United States Geological Survey, the United States Fish and Wildlife Service, and such other Federal agencies as appropriate.

(3) **CHAIRMAN.**—The interagency working group shall be chaired by the representative from the National Oceanic and Atmospheric Administration.

(b) **DUTIES.**—The Subcommittee shall—

(1) develop the strategic research and monitoring plan to guide Federal research on ocean acidification required under

section 12405 of this subtitle and oversee the implementation of the plan;

(2) oversee the development of—

(A) an assessment of the potential impacts of ocean acidification on marine organisms and marine ecosystems; and

(B) adaptation and mitigation strategies to conserve marine organisms and ecosystems exposed to ocean acidification;

(3) facilitate communication and outreach opportunities with nongovernmental organizations and members of the stakeholder community with interests in marine resources;

(4) coordinate the United States Federal research and monitoring program with research and monitoring programs and scientists from other nations; and

(5) establish or designate an Ocean Acidification Information Exchange to make information on ocean acidification developed through or utilized by the interagency ocean acidification program accessible through electronic means, [including information] *including—*

(A) *information* which would be useful to policymakers, researchers, and other stakeholders in mitigating or adapting to the impacts of ocean acidification[.]; and

(B) *an ongoing mechanism that allows affected industry members, coastal stakeholders, non-Federal resource managers, community acidification networks, indigenous knowledge groups, and scientific experts not employed by the Federal Government to provide input on research, data, and monitoring that is necessary to support on-the-ground management, decisionmaking, and adaptation related to ocean acidification and its impacts.*

(c) REPORTS TO CONGRESS.—

(1) INITIAL REPORT.—Not later than 1 year after the date of enactment of this Act, the Subcommittee shall transmit a report to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology and the Committee on Natural Resources of the House of Representatives that—

(A) includes a summary of federally funded ocean acidification research and monitoring activities, including the budget for each of these activities; and

(B) describes the progress in developing the plan required under section 12405 of this subtitle.

(2) BIENNIAL REPORT.—Not later than 2 years after the delivery of the initial report under paragraph (1) and every 2 years thereafter, the Subcommittee shall transmit a report to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology and the Committee on Natural Resources of the House of Representatives that includes—

(A) a summary of federally funded ocean acidification research and monitoring activities, including the budget for each of these activities; and

(B) an analysis of the progress made toward achieving the goals and priorities for the interagency research plan developed by the Subcommittee under section 12405.

(3) STRATEGIC RESEARCH PLAN.—Not later than 2 years after the date of enactment of this Act, the Subcommittee shall transmit the strategic research plan developed under section 12405 to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology and the Committee on Natural Resources of the House of Representatives. A revised plan shall be submitted at least once every 5 years thereafter.

SEC. 12405. STRATEGIC RESEARCH PLAN.

(a) IN GENERAL.—Not later than 2 years after the date of enactment of this Act, the Subcommittee shall develop a strategic plan for Federal research and monitoring on ocean acidification that will provide for an assessment of the impacts of ocean acidification on marine organisms and marine ecosystems and the development of adaptation and mitigation strategies to conserve marine organisms and marine ecosystems. In developing the plan, the Subcommittee shall consider and use information, reports, and studies of ocean acidification that have identified research and monitoring needed to better understand ocean acidification and its potential impacts, and recommendations made by the National Academy of Sciences in the review of the plan required under subsection (d).

(b) CONTENTS OF THE PLAN.—The plan shall—

(1) provide for interdisciplinary research among the ocean sciences, and coordinated research and activities to improve the understanding of ocean chemistry that will affect marine ecosystems;

(2) establish, for the 10-year period beginning in the year the plan is submitted, the goals and priorities for Federal research and monitoring which will—

(A) advance understanding of ocean acidification and its physical, chemical, and biological impacts on marine organisms and marine ecosystems;

(B) improve the ability to assess the socioeconomic impacts of ocean acidification; and

(C) provide information for the development of adaptation and mitigation strategies to conserve marine organisms and marine ecosystems;

(3) describe specific activities, including—

(A) efforts to determine user needs;

(B) research activities;

(C) monitoring activities;

(D) technology and methods development;

(E) data collection;

(F) database development;

(G) modeling activities;

(H) assessment of ocean acidification impacts; and

(I) participation in international research efforts;

(4) identify relevant programs and activities of the Federal agencies that contribute to the interagency program directly and indirectly and set forth the role of each Federal agency in implementing the plan;

(5) consider and utilize, as appropriate, reports and studies conducted by Federal agencies, the National Research Council, or other entities;

(6) make recommendations for the coordination of the ocean acidification research and monitoring activities of the United States with such activities of other nations and international organizations;

(7) outline budget requirements for Federal ocean acidification research and monitoring and assessment activities to be conducted by each agency under the plan;

(8) identify the monitoring systems and sampling programs currently employed in collecting data relevant to ocean acidification and prioritize additional monitoring systems that may be needed to ensure adequate data collection and monitoring of ocean acidification and its impacts; **[and]**

(9) describe specific activities designed to facilitate outreach and data and information exchange with stakeholder communities~~[[.]]~~; *and*

(10) make recommendations for research that should be conducted, including in the social sciences and economics, to address the key knowledge gaps identified in the community vulnerability assessment report conducted under section 12406(b).

(c) PROGRAM ELEMENTS.—The plan shall include at a minimum the following program elements:

(1) Monitoring of ocean chemistry and biological impacts associated with ocean acidification at selected coastal and open-ocean monitoring stations, including satellite-based monitoring to characterize—

(A) marine ecosystems;

(B) changes in marine productivity; and

(C) changes in surface ocean chemistry.

(2) Research to understand the species specific physiological responses of marine organisms to ocean acidification, impacts on marine food webs of ocean acidification, and to develop environmental and ecological indices that track marine ecosystem responses to ocean acidification.

(3) Modeling to predict changes in the ocean carbon cycle as a function of carbon dioxide and atmosphere-induced changes in temperature, ocean circulation, biogeochemistry, ecosystem and terrestrial input, and modeling to determine impacts on marine ecosystems and individual marine organisms.

(4) Technology development and standardization of carbonate chemistry measurements on moorings and autonomous floats.

(5) Assessment of socioeconomic impacts of ocean acidification and development of adaptation and mitigation strategies to conserve marine organisms and marine ecosystems.

(d) NATIONAL ACADEMY OF SCIENCES EVALUATION.—The Secretary shall enter into an agreement with the National Academy of Sciences to review the plan.

(e) PUBLIC PARTICIPATION.—In developing the plan, the Subcommittee shall consult with representatives of academic, State, industry, *tribal governments*, *indigenous knowledge groups*, and environmental groups. Not later than 90 days before the plan, or any revision thereof, is submitted to the Congress, the plan shall be

published in the Federal Register for a public comment period of not less than 60 days.

SEC. 12406. NOAA OCEAN ACIDIFICATION ACTIVITIES.

(a) **IN GENERAL.**—The Secretary shall establish and maintain an ocean acidification program within the National Oceanic and Atmospheric Administration to conduct research, monitoring, and other activities consistent with the strategic research and implementation plan developed by the Subcommittee under section 12405 that—

(1) includes—

(A) interdisciplinary research among the ocean and atmospheric sciences, and coordinated research and activities to improve understanding of ocean acidification;

(B) the establishment of a long-term monitoring program of ocean acidification utilizing existing global and national ocean observing assets, and adding instrumentation and sampling stations as appropriate to the aims of the research program;

(C) research to identify and develop adaptation strategies and techniques for effectively conserving marine ecosystems as they cope with increased ocean acidification;

(D) as an integral part of the research programs described in this subtitle, educational opportunities that encourage an interdisciplinary and international approach to exploring the impacts of ocean acidification;

(E) as an integral part of the research programs described in this subtitle, national public outreach activities to improve the understanding of current scientific knowledge of ocean acidification and its impacts on marine resources; and

(F) coordination of ocean acidification monitoring and impacts research with other appropriate international ocean science bodies such as the International Oceanographic Commission, the International Council for the Exploration of the Sea, the North Pacific Marine Science Organization, and others;

(2) provides grants for critical research projects that explore the effects of ocean acidification on ecosystems and the socioeconomic impacts of increased ocean acidification that are relevant to the goals and priorities of the strategic research plan; and

(3) incorporates a competitive merit-based process for awarding grants that may be conducted jointly with other participating agencies or under the National Oceanographic Partnership Program under section 8931 of title 10, United States Code.

(b) **COMMUNITY VULNERABILITY ASSESSMENT.**—

(1) **IN GENERAL.**—*The Secretary, through the program established under subsection (a), shall conduct an ocean acidification coastal community vulnerability assessment, and issue a corresponding public report, which shall be updated at least once every 7 years.*

(2) **REQUIREMENTS.**—*The assessment conducted under paragraph (1) shall—*

(A) identify the United States coastal communities, including island communities, low-population rural communities, and subsistence communities, that are most dependent on coastal and ocean resources that may be impacted by ocean acidification;

(B) assess the nature of the social and economic vulnerabilities of those communities, including the economic impact on local or regional commercial fisheries and recreational opportunities;

(C) identify the ocean acidification impacts that might harm those communities, including impacts from changes in ocean and coastal marine resources that are not managed by the Federal Government;

(D) identify key knowledge gaps where research could be devoted to better understand the possible impacts of ocean acidification on those communities, the risks and threats facing those communities, and possible adaptation strategies for those communities; and

(E) be conducted in collaboration with experts, indigenous knowledge groups, and stakeholders who are familiar with the unique economic, social, ecological, geographic, and resource concerns of coastal communities in the United States, including representatives of—

(i) the National Marine Fisheries Service and the Office for Coastal Management of the National Oceanic and Atmospheric Administration;

(ii) National Integrated Coastal and Ocean Observation System regional information coordination entities established under section 12304(c)(4) of the Integrated Coastal and Ocean Observation System Act of 2009 (33 U.S.C. 3603(c)(4));

(iii) regional ocean acidification networks; and

(iv) State sea grant programs (as defined in section 203 of the National Sea Grant College Program Act (33 U.S.C. 1122)).

(c) **SUPPORT FOR STATE AND LOCAL VULNERABILITY ASSESSMENTS AND STRATEGIC RESEARCH PLANNING.**—In carrying out the program established under subsection (a), the Secretary shall collaborate with State, local, and tribal government entities that are conducting or have completed vulnerability assessments, strategic research planning, or other similar activities related to ocean acidification and its impacts on coastal communities, for the purpose of—

(1) determining whether such activities can be used as a model for other communities; and

(2) identifying opportunities for the National Oceanic and Atmospheric Administration and other relevant Federal agencies to support such activities.

[(b)] (d) **ADDITIONAL AUTHORITY.**—In conducting the Program, the Secretary may enter into and perform such contracts, leases, grants, or cooperative agreements as may be necessary to carry out the purposes of this subtitle on such terms as the Secretary considers appropriate.

* * * * *

SEC. 12409. AUTHORIZATION OF APPROPRIATIONS.

[(a) NOAA.—There are authorized to be appropriated to the National Oceanic and Atmospheric Administration to carry out the purposes of this subtitle—

- [(1) \$8,000,000 for fiscal year 2009;
- [(2) \$12,000,000 for fiscal year 2010;
- [(3) \$15,000,000 for fiscal year 2011; and
- [(4) \$20,000,000 for fiscal year 2012.]]

(a) NOAA.—*There are authorized to be appropriated to the National Oceanic and Atmospheric Administration to carry out the purposes of this subtitle \$2,700,000 for each of fiscal years 2020 through 2024.*

(b) NSF.—There are authorized to be appropriated to the National Science Foundation to carry out the purposes of this subtitle—

- (1) \$6,000,000 for fiscal year 2009;
- (2) \$8,000,000 for fiscal year 2010;
- (3) \$12,000,000 for fiscal year 2011; and
- (4) \$15,000,000 for fiscal year 2012.

* * * * *

XX. EXCHANGE OF COMMITTEE CORRESPONDENCE

EDDIE BERNICE JOHNSON, Texas
CHAIRWOMANFRANK D. LUCAS, Oklahoma
RANKING MEMBERCongress of the United States
House of Representatives

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

2321 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515-6301

(202) 225-6375
www.science.house.gov

May 14, 2019

Chairman Raúl M. Grijalva
Committee on Natural Resources
U.S. House of Representatives
1324 Longworth House Office Building
Washington, DC 20515

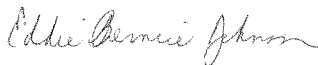
Dear Chairman Grijalva,

I am writing to you concerning H.R. 1716, the "Coastal Communities Ocean Acidification Act of 2019," which was referred to the Committee on Science, Space, and Technology on March 13, 2019.

I appreciate your willingness to work cooperatively on this bill. I recognize that the bill contains provisions that fall within the jurisdiction of the Committee on Natural Resources. I acknowledge that your Committee will waive further consideration of H.R. 1716 and that this action is not a waiver of future jurisdictional claims by the Committee on Natural Resources over this subject matter.

I will make sure to include our exchange of letters in the *Congressional Record* and legislative reports. Thank you for your cooperation on this legislation.

Sincerely,

Eddie Bernice Johnson
Chairwomancc: Ranking Member Frank D. Lucas, Committee on Science, Space, and Technology
Ranking Member Rob Bishop, Committee on Natural Resources

RAUL M. GRIJALVA OF ARIZONA
CHAIRMAN

DAVID WATKINS
STAFF DIRECTOR

U.S. House of Representatives
Committee on Natural Resources
Washington, DC 20515

ROB BISHOP OF UTAH
RANKING REPUBLICAN

PARISH BRADEN
REPUBLICAN STAFF DIRECTOR

May 16, 2019

The Honorable Eddie Bernice Johnson
Chairwoman
Committee on Science, Space, and Technology
U.S. House of Representatives
2321 Rayburn House Office Building
Washington, DC 20515

Dear Chairwoman Johnson,

In recognition of the goal of expediting consideration of H.R. 1716, the "Coastal Communities Ocean Acidification Act of 2019," the Committee on Natural Resources agrees to waive formal consideration of the bill as to provisions that fall within the Rule X jurisdiction of the Committee on Natural Resources.

The Committee on Natural Resources takes this action with the mutual understanding that, in doing so, we do not waive any jurisdiction over the subject matter contained in this or similar legislation, and that the Committee will be appropriately consulted and involved as the bill or similar legislation moves forward so that we may address any remaining issues within our jurisdiction. Our Committee also reserves the right to seek appointment of conferees to any House-Senate conference involving this or similar legislation.

Thank you for agreeing to include our exchange of letters in the *Congressional Record*. I appreciate your cooperation regarding this legislation and look forward to continuing to work with you as this measure moves through the legislative process.

Sincerely,



Raúl M. Grijalva
Chair

cc: The Honorable Rob Bishop, Ranking Member, Committee on Natural Resources
The Honorable Frank Lucas, Ranking Member, Committee on Science, Space, and Technology
The Honorable Thomas J. Wickham, Jr., Parliamentarian

XXI. PROCEEDINGS OF SUBCOMMITTEE MARKUP

**MARKUPS: H.R. 1237,
COAST RESEARCH ACT OF 2019;
H.R. 1716, COASTAL COMMUNITIES
OCEAN ACIDIFICATION ACT OF 2019;
H.R. 1921, OCEAN ACIDIFICATION
INNOVATION ACT OF 2019; AND
H.R. 988, NEAR ACT OF 2019**

TUESDAY, APRIL 9, 2019

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENVIRONMENT,
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
Washington, D.C.

The subcommittee met, pursuant to notice, at 2:10 p.m., in room 2318 of the Rayburn House Office Building, Hon. Lizzie Fletcher [Chairwoman of the Subcommittee] presiding.

Chairwoman FLETCHER. Good afternoon. The Subcommittee will come to order. Without objection, the Chair is authorized to declare recess at any time. Pursuant to Committee Rule 2(e) and House Rule 11, the Chair announces that she may postpone roll call votes.

Pursuant to notice, the Subcommittee on the Environment meets to consider the following measures: H.R. 1237, the *COAST Research Act*; H.R. 1716, the *Coastal Communities Ocean Acidification Act of 2019*; H.R. 1921, the *Ocean Acidification Innovation Act of 2019*; and H.R. 988, the *NEAR Act of 2019*.

Welcome to our first Environment Subcommittee markup. Today we will be marking up four bipartisan bills that address an invisible but growing threat to our ocean and coastal economies and communities: Ocean acidification. At our March 7 Subcommittee hearing entitled, "Sea Change: Impacts of Climate Change on Our Nation's Oceans and Coasts," we heard from a variety of experts from the research community and industry who recognized ocean acidification as one of the top threats facing our oceans and coasts. Before going into the bills we will be marking up, I first want to give a brief explanation of why we need to address ocean acidification.

Ocean acidification is the gradual decrease in oceanic pH due to absorption of excess carbon dioxide in the atmosphere. It is often called the "other CO₂ problem" because, like climate change, it is caused primarily by excess CO₂ in the atmosphere. Since the beginning of the Industrial Revolution, the oceans have absorbed about a third of anthropogenic CO₂ emissions, resulting in a 30-percent increase in acidity levels. This increase in ocean acidity can cause

a number of problems that we are only beginning to fully understand.

In the mid-2000s, the multimillion-dollar Pacific Northwest shellfish hatchery industry experienced a near economic collapse due to shellfish larvae struggling to develop shells, which was eventually linked to more acidic ocean waters. This was a wake up call for the shellfish industry, researchers, and coastal communities. Recognizing the growing threat of ocean acidification, Congress enacted the *Federal Ocean Acidification Research and Monitoring Act*, or *FOARM*, in 2009 to support research and monitoring efforts to better understand ocean acidification and its impacts. The bill established the Ocean Acidification Program at the National Oceanic and Atmospheric Administration, NOAA, and the Interagency Working Group on Ocean Acidification, which provides a coordinated response by Federal agencies to understand, monitor, and address ocean acidification.

Since *FOARM* was passed into law, our understanding of ocean acidification impacts has increased substantially. For example, we know much more about why shelled marine organisms, such as oysters, mussels, clams, and corals, are particularly sensitive to low pH conditions. It is also predicted that many other fisheries will be negatively impacted, with some models predicting that acidification will cause widespread declines in fish catch. Thanks to *FOARM*, the engagement of multiple sectors, including Federal and non-Federal researchers, shellfish industry, resource managers, and others, there has been success in adapting the shellfish hatchery industry to ocean acidification. Now we need to help prepare other potentially vulnerable communities and industries. However, there is still a long way to go in understanding, predicting, and preparing for changes in ocean chemistry, which is why we need to enhance existing Federal efforts and add more tools to the toolbox, as the bills we're marking up today will accomplish.

H.R. 1237, the *Coastal and Ocean Acidification Stressors and Threats, COAST, Research Act of 2019*, reauthorizes and updates the *FOARM Act of 2009* to broaden the scope of Federal efforts to better understand the effects of ocean and coastal acidification. H.R. 1716, the *Coastal Communities Ocean Acidification Act of 2019*, supports Federal research and monitoring efforts by identifying the socioeconomic needs of coastal communities vulnerable to ocean acidification through requiring NOAA to conduct vulnerability assessments. H.R. 1921, the *Ocean Acidification Innovation Act of 2019*, creates prize competitions to incentivize innovative solutions to help vulnerable communities better understand, monitor, and respond to ocean acidification. Finally, H.R. 988, the *National Estuaries and Acidification Research, NEAR, Act of 2019*, improves our understanding of the impacts of ocean acidification on our Nation's ecologically and economically important estuarine environments.

Before I yield back, I would also like to place into the record this letter of support for all four bills from Ocean Conservancy. I do so without objection.

[The information referred to follows:]

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1300 19th Street NW
8th Floor
Washington DC 20036

Ocean Conservancy

202.429.5609 Telephone
202.872.0618 Facsimile
www.oceanconservancy.org

April 8, 2019

The Honorable Lizzie Fletcher
Chairwoman
Environment Subcommittee
Committee on Science, Space, and Technology
U.S. House of Representatives
Washington, D.C. 20515

The Honorable Roger Marshall
Ranking Member
Environment Subcommittee
Committee on Science, Space, and Technology
U.S. House of Representatives
Washington, D.C. 20515

Dear Chairwoman Fletcher and Ranking Member Marshall:

On behalf of Ocean Conservancy, I write to provide our organization's support for several bills scheduled for markup by the House Science, Space, and Technology Environment Subcommittee, including H.R.1237, the *COAST Research Act of 2019*, H.R.1716, the *Coastal Communities Ocean Acidification Act of 2019*, H.R.1921, the *Ocean Acidification Innovation Act of 2019*, and H.R.988, the *NEAR Act of 2019*. These bills will improve how the federal government prepares for and responds to the impacts from ocean acidification, and deserve further consideration and approval by the Committee and the full U.S. House of Representatives.

Ocean acidification is changing the chemistry of our ocean, and coastal communities are already seeing the effects. As the ocean absorbs much of the carbon dioxide from the atmosphere, it mixes with seawater, causing an increase in the water's acidity. This increase in acidity causes a broad range of negative impacts that disrupt the benefits that ocean systems and resources provide to human communities. Coral reef-associated fisheries and tourism are put at risk as corals, oysters, clams, and other animals struggle to build their shells and skeletons in more acidic waters. Additionally, fishery revenues could decline if ocean acidification decreases the recruitment or slows the growth of lucrative species like sea scallops and red king or Tanner crab.

Following the widespread death of larval shellfish that nearly bankrupted hatcheries in the Pacific Northwest in the mid-2000s because of ocean acidification, Congress took action to better understand the impact of ocean acidification on people and marine resources. In 2009, the *Federal Ocean Acidification Research and Monitoring Act* (FOARAM) was signed into law. FOARAM established the NOAA Ocean Acidification Program and the Inter-Agency Working Group on Ocean Acidification, which provides a coordinated response by U.S. federal agencies to understand, track, and address ocean acidification. Much of our knowledge and understanding of ocean acidification that has emerged in the last decade can be credited to the work authorized by FOARAM, and it is crucial that Congress continue to build upon this foundation to better understand and address the impacts from ocean acidification.

The bills under consideration by the Committee will strengthen our nation's investments in ocean acidification research and monitoring. The *Coastal Communities Ocean Acidification Act of 2019* would better inform federal research and monitoring plans by taking into consideration the needs of coastal communities vulnerable to ocean acidification, and the *Ocean Acidification Innovation Act of 2019* would incentivize technological innovation in our nation's ability to understand, research, monitor, or adapt to ocean acidification. Further, the *NEAR Act of 2019* would improve our ability to understand the impacts from ocean acidification in estuarine environments, and the *COAST Research Act of 2019* would

reauthorize our nation's investments in ocean acidification and broaden the scope of federal work to better understand the effects from acidification not only in the open ocean but also in the coastal zone.

Importantly, each of these bills has support from members of both parties. These members recognize that coastal communities are experiencing the impacts from ocean acidification now, and there is a role for the federal government to play to better understand the science behind acidification and prepare communities for acidification's effects.

We appreciate the Committee's consideration of these bills, and encourage you and your colleagues to swiftly approve these bills and report them to the full U.S. House of Representatives for approval.

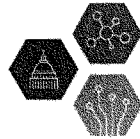
Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Watters", with a long horizontal flourish extending to the right.

Jeff Watters
Director, Government Relations
Ocean Conservancy

Chairwoman FLETCHER. I'm glad we're marking up this legislation today to address the growing impacts of ocean acidification, and look forward to moving these bills through the markup process, and eventually to the floor.

[The prepared statement of Chairwoman Fletcher follows:]



U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON
SCIENCE, SPACE, & TECHNOLOGY

Opening Statement

Chair Lizzie Fletcher (D-TX)
Subcommittee on Environment

Subcommittee Markup of:
H.R. 1237, the "COAST Research Act of 2019",
H.R. 1716, the "Coastal Communities Ocean Acidification Act of 2019",
H.R. 1921, the "Ocean Acidification Innovation Act of 2019",
and H.R. 988, the "NEAR Act of 2019."
 April 9, 2019

Welcome to our first Environment Subcommittee markup. Today, we will be marking up four bipartisan bills that address an invisible but growing threat to our ocean and coastal economies and communities: ocean acidification. At our March 7th Subcommittee hearing, entitled "Sea Change: Impacts of Climate Change on Our Nation's Oceans and Coasts," we heard from a variety of experts from the research community and industry who recognized ocean acidification as one of the top threats facing our oceans and coasts. Before going into the bills we will be marking up, I first want to give a brief explanation of why we need to address ocean acidification.

Ocean acidification is the gradual decrease in oceanic pH due to absorption of excess carbon dioxide (CO₂) in the atmosphere. It is often called "the other CO₂ problem," because, like climate change, it is caused primarily by excess CO₂ in the atmosphere. Since the beginning of the Industrial Revolution, the oceans have absorbed about a third of anthropogenic CO₂ emissions, resulting in a 30 percent increase in acidity levels. This increase in ocean acidity can cause a number of problems that we are only beginning to fully understand.

In the mid-2000s, the multi-million dollar Pacific Northwest shellfish hatchery industry experienced a near economic collapse due to shellfish larvae struggling to develop shells, which was eventually linked to more acidic ocean waters. This was a wake-up call for the shellfish industry, researchers, and coastal communities.

Recognizing the growing threat of ocean acidification, Congress enacted the Federal Ocean Acidification Research and Monitoring Act (or FOARAM) in 2009, to support research and monitoring efforts to better understand ocean acidification and its impacts. The bill established the Ocean Acidification Program at the National Oceanic and Atmospheric Administration (NOAA), and the Interagency Working Group on Ocean Acidification, which provides a coordinated response by federal agencies to understand, monitor, and address ocean acidification.

Since FOARAM was passed into law, our understanding of ocean acidification impacts has increased substantially. For example, we know much more about why shelled marine organisms, such as oysters, mussels, clams, and corals, are particularly sensitive to low pH conditions. It is predicted that many other fisheries will be negatively impacted, with some models predicting that acidification will cause widespread declines in fish catch.

Thanks to FOARAM and the engagement of multiple sectors, including federal and non-federal researchers, shellfish industry, resource managers, and others, there has been success in adapting the shellfish hatchery industry to ocean acidification. Now, we need to help prepare other potentially vulnerable communities and industries. However, there is still a long way to go in understanding, predicting, and preparing for changes in ocean chemistry, which is why we need to enhance existing federal efforts and add more tools to the toolbox, as the bills we're marking up today will accomplish.

H.R. 1237, the Coastal and Ocean Acidification Stressors and Threats (COAST) Research Act of 2019, reauthorizes and updates the FOARAM Act of 2009 to broaden the scope of federal efforts to better understand the effects of ocean and coastal acidification.

H.R. 1716, the Coastal Communities Ocean Acidification Act of 2019, supports federal research and monitoring efforts by identifying the socioeconomic needs of coastal communities vulnerable to ocean acidification through requiring NOAA to conduct vulnerability assessments.

H.R. 1921, the Ocean Acidification Innovation Act of 2019, creates prize competitions to incentivize innovative solutions to help vulnerable communities better understand, monitor, and respond to ocean acidification.

Finally, H.R. 988, the National Estuaries and Acidification Research (NEAR) Act of 2019, improves our understanding of the impacts of ocean acidification on our nation's ecologically and economically important estuarine environments.

Before I yield back, I would also like to place into the record this letter of support for all four bills from Ocean Conservancy. Without objection.

I'm glad we're marking up this legislation today to address the growing impacts of ocean acidification and look forward to moving these bills through the markup process, and eventually to the floor.

Chairwoman FLETCHER. I now recognize Ranking Member Marshall to present his opening remarks.

Mr. MARSHALL. Yes, I thank you so much, Chairwoman Fletcher, for holding this markup today. But before I begin my statement, I want to welcome the newest member of our Subcommittee, my very good friend Congresswoman Jenniffer González-Colón. As Puerto Rico's only representative in Congress, she brings a unique and valued perspective to our Subcommittee, especially on ocean acidification, the topic of today's legislation. I look forward to working with her as a Member of this Subcommittee.

Now, while Kansas may be very far from our Nation's coastlines, discussing the impact of our climate on the country's resources is of top importance to our farmers and producers, both in Kansas, as well as across the country. As a grandfather, as well as an avid outdoorsman, I believe that we need to leave this world better than we found it for the next generation, and I hope this legislation we'll be discussing today will bring us one step closer to finding innovative solutions to the challenge of ocean acidification.

In 2009, Congress first passed the *Federal Ocean Acidification Research and Monitoring Act*, which was intended to help the National Oceanic Atmospheric Administration better understand the effects of ocean acidification on the ocean environment. You can't say this too quickly. There's too big of words, and they kind of run together there. Lots of vowels. This law created the Interagency Working Group on Ocean Acidification, which is made up of 14 different agencies and institutions to coordinate research and resource management related to ocean acidification. Despite their efforts, we learned in a hearing hosted by this Subcommittee in February that there's still more we can do to address the causes and impacts of the changing ocean chemistry, especially as it pertains to coastal regions. The measures today have been offered by a bipartisan group of members representing coastal districts most impacted by ocean acidification.

Whether through better coordination across Federal agencies, or through expansion and improvements to existing programs, these bills modify the way that we approach changes to marine ecosystems. The Earth's oceans are always in a state of evolution, and the steps we're taking today can improve the sustainability and overall health of our ecosystems, while still encouraging innovative approaches to addressing these fluctuations. I thank my colleagues for their leadership in addressing this issue, and encourage the Members of this Subcommittee to support these bills. Thank you, and I yield back.

[The prepared statement of Mr. Marshall follows:]

Opening Statement of Ranking Member Roger Marshall at Environment Subcommittee Markup of Ocean Health Legislation

Apr 9, 2019

Opening Statement

Thank you, Chairwoman Fletcher, for holding this markup today. Before I begin my statement, I want to welcome the newest member of our subcommittee, Congresswoman Jenniffer González-Colón. As Puerto Rico's only representative in Congress, she brings a unique perspective to our subcommittee, especially on ocean acidification, the topic of today's legislation. I look forward to working with her as a member of this subcommittee.

While Kansas may be far from our nation's coastlines, discussing the impact of our climate on the country's resources is of top importance to our farmers and producers both in Kansas as well as across the country. As a grandfather as well as an avid outdoorsman, I believe that we need to leave this world better than we found it for the next generation, and I hope that the legislation we will be discussing today will bring us one step closer to finding innovative solutions to the challenge of ocean acidification.

In 2009, Congress first passed the Federal Ocean Acidification Research and Monitoring Act, which was intended to help the National Oceanic and Atmospheric Administration (NOAA) better understand the effects of ocean acidification on the ocean environment. This law created the Interagency Working Group on Ocean Acidification, which is made up of 14 different agencies and institutions to coordinate research and resource management related to ocean acidification.

Despite their efforts, we learned in a hearing hosted by this subcommittee in February that there is still more that we can do to address the causes and

impacts of the changing ocean chemistry, especially as it pertains to coastal regions.

The measures today have been offered by a bipartisan group of Members representing coastal districts most impacted by ocean acidification. Whether through better coordination across federal agencies or through expansion and improvements to existing programs, these bills modify the way that we approach changes to marine ecosystems.

The earth's oceans are always in a state of evolution and the steps we're taking today can improve the sustainability and overall health of our ecosystems, while still encouraging innovative approaches to addressing these fluctuations.

I thank my colleagues for their leadership in addressing this issue and encourage the Members of this subcommittee to support these bills.

Chairwoman FLETCHER. Thank you, Chairwoman Johnson. Does anyone else wish to be recognized? Are there any amendments to the bill?

If no, then, a reporting quorum being present, I move that the Committee on Science, Space, and Technology report H.R. 1237 to the Full Committee, with the recommendation that the bill be approved.

Those in favor of the motion will signify by saying aye.

Any opposed say no.

The ayes have it, and the bill is favorably reported.

Without objection, the Motion to Reconsider is laid upon the table. I ask unanimous consent that staff be authorized to make any necessary technical and conforming changes to the bill. Without objection, so ordered. Members will have 2 subsequent calendar days in which to submit supplemental minority or additional views on the measure.

H.R. 1716

Chairwoman FLETCHER. We'll now consider H.R. 1716, the *Coast Communities Ocean Acidification Act of 2019*. The Clerk will report the bill.

The CLERK. H.R. 1716, a bill to direct the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration, to conduct coastal community vulnerability assessments related to ocean acidification, and for other purposes.

[The bill follows:]



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116TH CONGRESS
1ST SESSION

H. R. 1716

To direct the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration, to conduct coastal community vulnerability assessments related to ocean acidification, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 13, 2019

Ms. PINGREE (for herself, Mr. ROONEY of Florida, Mr. HUFFMAN, Ms. BONAMICI, Mr. KING of New York, Mr. YOUNG, and Mr. THOMPSON of California) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

To direct the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration, to conduct coastal community vulnerability assessments related to ocean acidification, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 SECTION 1. SHORT TITLE.

4 This Act may be cited as the “Coastal Communities
5 Ocean Acidification Act of 2019”.

1 **SEC. 2. COASTAL COMMUNITY VULNERABILITY ASSESS-**
2 **MENT.**

3 (a) IN GENERAL.—Section 12406 of the Federal
4 Ocean Acidification Research And Monitoring Act of 2009
5 (33 U.S.C. 3705) is amended—

6 (1) by redesignating subsection (b) as sub-
7 section (d); and

8 (2) by inserting after subsection (a) the fol-
9 lowing:

10 “(b) COMMUNITY VULNERABILITY ASSESSMENT.—

11 “(1) IN GENERAL.—The Secretary, through the
12 program established under subsection (a), shall con-
13 duct an ocean acidification coastal community vul-
14 nerability assessment, and issue a corresponding
15 public report, that shall be updated at least once
16 every 7 years.

17 “(2) REQUIREMENTS.—The assessment con-
18 ducted under paragraph (1) shall—

19 “(A) identify the United States coastal
20 communities, including island communities, low-
21 population rural communities, and subsistence
22 communities, that are most dependent on coast-
23 al and ocean resources that may be impacted by
24 ocean acidification;

25 “(B) assess the nature of those commu-
26 nities’ social and economic vulnerabilities;

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1 “(C) identify the ocean acidification im-
2 pacts that might harm those communities, in-
3 cluding impacts from changes in ocean and
4 coastal marine resources that are not managed
5 by the Federal Government;

6 “(D) identify key knowledge gaps where
7 research could be devoted to better understand
8 the possible impacts of ocean acidification on
9 these vulnerable communities, the risks and
10 threats facing these communities, and possible
11 adaptation strategies for these communities;
12 and

13 “(E) be conducted in collaboration with ex-
14 perts who are familiar with the unique eco-
15 nomic, social, ecological, geographic, and re-
16 source concerns of the Nation’s coastal commu-
17 nities, including representatives from the Na-
18 tional Oceanic and Atmospheric Administra-
19 tion’s National Marine Fisheries Service and
20 the Office for Coastal Management.

21 “(c) SUPPORT FOR STATE AND LOCAL VULNER-
22 ABILITY ASSESSMENTS AND STRATEGIC RESEARCH
23 PLANNING.—In carrying out the program established
24 under subsection (a), the Secretary shall collaborate with
25 State and local government entities that are conducting

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1 or have completed vulnerability assessments, strategic re-
2 search planning, or other similar activities related to ocean
3 acidification and its impacts on coastal communities, for
4 the purpose of—

5 “(1) determining whether such activities can be
6 used as a model for other communities; and

7 “(2) identifying opportunities for the National
8 Oceanic and Atmospheric Administration to support
9 such activities.”.

10 (b) ONGOING INPUT MECHANISM.—Section
11 12404(b)(5) of the Federal Ocean Acidification Research
12 And Monitoring Act of 2009 (33 U.S.C. 3703(b)(5)) is
13 amended by adding at the end before the period the fol-
14 lowing: “, also including an ongoing mechanism that al-
15 lows affected industry members, coastal stakeholders, non-
16 Federal resource managers, coastal acidification networks,
17 and scientific experts not employed by the Federal Govern-
18 ment to provide input on research, data, and monitoring
19 that is necessary to support on-the-ground management,
20 decisionmaking, and adaptation related to ocean acidifica-
21 tion and its impacts”.

22 (c) STRATEGIC RESEARCH PLAN.—Section 12405(b)
23 of the Federal Ocean Acidification Research And Moni-
24 toring Act of 2009 (33 U.S.C. 3704(b)) is amended—

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5

1 (1) in paragraph (8), by striking “and” after
2 the semicolon;

3 (2) in paragraph (9), by striking the period at
4 the end and inserting “; and”; and

5 (3) by adding at the end the following:

6 “(10) make recommendations for research that
7 should be conducted, including in the social sciences
8 and economics, to address the key knowledge gaps
9 identified in the community vulnerability assessment
10 report conducted under subsection (b) of section
11 12406.”.

12 (d) REPORT ON SUPPORT FOR STATE AND LOCAL
13 VULNERABILITY ASSESSMENTS AND STRATEGIC RE-
14 SEARCH PLANNING.—Not later than 180 days after the
15 date of the enactment of this Act, the Administrator of
16 the National Oceanic and Atmospheric Administration
17 shall submit to Congress a report on the efforts of the
18 National Oceanic and Atmospheric Administration to sup-
19 port State and local community vulnerability assessments
20 and strategic research planning, pursuant to section
21 12406(c) of the Federal Ocean Acidification Research And
22 Monitoring Act of 2009 (as added by subsection (a) of
23 this section).

○

Chairwoman FLETCHER. And, without objection, the bill is considered as read, and open to amendment at any point. I recognize myself briefly to comment on the bill.

H.R. 1716, the *Coast Communities Ocean Acidification Act of 2019*, which was introduced by Ms. Pingree, amends the *FOARM Act* to require NOAA to study the socioeconomic impacts of ocean acidification on coastal communities across the United States. It requires NOAA to conduct assessments of the communities that are most vulnerable to ocean acidification, and publish a corresponding public report that is updated at least once every 7 years. The bill creates an ongoing input mechanism to allow affected coastal industries, resource managers, and other non-Federal stakeholders to provide input on Federal efforts. NOAA is directed to collaborate with State and local governments that are already conducting such efforts, and submit a one-time report to Congress 180 days after enactment of the bill on its efforts to support community vulnerability assessments. I support the bill, and urge my colleagues to support it.

Does anyone else wish to be recognized?

Ms. GONZÁLEZ-COLÓN. Madam Chair?

Chairwoman FLETCHER. The Chair will now recognize Ms. González-Colón.

Ms. GONZÁLEZ-COLÓN. Thank you, Madam Chair Fletcher, and Ranking Member Marshall. And, as a matter of fact, I want to say thank you to my dear friend Marshall for the warm welcome to the Subcommittee. This is the first time I'm in the Subcommittee. I was here some weeks ago to my first hearing, during the NASA budget, and I'm happy, thrilled, to be here, and for this markup to these important bills.

And, actually, H.R. 1716, the *Coastal Community Ocean Acidification Act*, will be instrumental in understanding the impact of this phenomenon. Overall, the bill directs NOAA to conduct coastal community vulnerability assessments related to ocean acidification. In the case of Puerto Rico and the territories, it is important. I mean, islands live on the reefs, and the economy that is related, because of the fisheries, and everything related to our economy is because of our waters. These assessments further require NOAA to identify coastal communities that may be impacted, and are most dependent on coastal and ocean resources, in collaboration with States and local officials. And many of those times universities receive grants from the Federal Government to the—to do those kinds of research, and NGOs (nongovernmental organizations) as well. Puerto Rico is affected by anything that negatively impact the health of the ocean and our coastline. And, as a matter of fact, during the last budget, the Army Corps of Engineers was allocated funds to do a coastal erosion study. Being an island community, protecting our coast, as well as our coastal marine resources, is of utmost importance for the stability of the economy and wellbeing of our island residents.

And this is not just Puerto Rico. This is the U.S. Virgin Islands, Guam, American Samoa, Northern Mariana Islands as well. So I commend Ms. Pingree for her leadership on this issue, and I look forward to working with my colleagues on both sides of the aisle to understand the scope and the impact on oceanic acidification,

and additionally I look forward to ensure all the territories, including Puerto Rico, are considered when conducting community studies, and assessment, and other important environmental initiative undertaken by the Committee. So thank you, and thank you, Ranking Member Lucas, for including us, and allowing us to be part of this effort. With that, I yield back the balance of the time.

Chairwoman FLETCHER. Thank you, Ms. González-Colón. Does anyone else wish to be recognized?

Understanding that there are votes, we'll try to move fairly quickly, but we will recess, if necessary, and come back following votes. On this bill, are there any amendments? If no, then, a reporting quorum being present, I move the Committee on Science, Space, and Technology report H.R. 1716 to the Full Committee, with the recommendation that the bill be approved.

Those in favor of the motion will signify by saying aye.

Opposed, no.

The ayes have it, and the bill is favorably reported. Without objection, the Motion to Reconsider is laid upon the table. I ask unanimous consent that staff be authorized to make any necessary technical and conforming changes to the bill. Without objection, so ordered. Members will have 2 subsequent calendar days in which to submit supplemental minority or additional views on the measure.

H.R. 1921

Chairwoman FLETCHER. We will now consider H.R. 1921, the *Ocean Acidification Innovation Act of 2019*. The Clerk will report the bill.

The CLERK. H.R. 1921, a bill to authorize Federal——

[The bill follows:]

XXII. PROCEEDINGS OF FULL COMMITTEE MARKUP

**MARKUPS: H.R. 34, ENERGY AND WATER
RESEARCH INTEGRATION ACT OF 2019;
H.R. 2397, AMERICAN MANUFACTURING
LEADERSHIP ACT;
H.R. 1237, COAST RESEARCH ACT OF 2019;
H.R. 1716, COASTAL COMMUNITIES OCEAN
ACIDIFICATION ACT OF 2019;
H.R. 1921, OCEAN ACIDIFICATION
INNOVATION ACT OF 2019;
AND H.R. 988, NEAR ACT OF 2019**

WEDNESDAY, MAY 1, 2019

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
Washington, D.C.

The Committee met, pursuant to notice, at 10 a.m., in room 2318 of the Rayburn House Office Building, Hon. Eddie Bernice Johnson [Chairwoman of the Committee] presiding.

Chairwoman JOHNSON. Good morning. The Committee will come to order. And without objection, the Chair is authorized to declare recess at any time. Pursuant to Committee rule 2(e) and House rule XI, the Chair announces that she may postpone roll call votes.

Pursuant to notice, the Committee meets to consider the following measures—and before I start into the measures, let me say that it is historic for me and that this is the first time I’m presiding over a markup of the Full Committee—H.R. 34, *Energy and Water Research Integration Act of 2019*; H.R. 2397, *American Manufacturing Leadership Act*—that’s the reauthorization—and H.R. 1237, *COAST Research Act*; H.R. 1716, *Coastal Communities Ocean Acidification Act of 2019*; H.R. 1921, *Ocean Acidification Innovation Act of 2019*; and H.R. 988, *NEAR Act of 2019*. And I want to welcome everyone to our first Full Committee markup on Science, Space, and Technology for the 116th Congress.

Today, we meet to markup six good bipartisan bills. Each of these bills address critical issues facing our Nation. First, we are considering H.R. 34, the *Energy and Water Research Integration Act of 2019*. I’ll say more about this bill in a minute, but for now, I’ll just say that the bill addresses complex ties between water and energy production in America.

As water resources are increasingly strained all across our country, in fact, across the world, I think it is critical that we better use and conserve those resources. I want to thank Ranking Mem-

ber Lucas for being an original cosponsor of the bill and helping me to make a good bill even better. We both come from a part of the country where a drop of water has long been a precious commodity. Unfortunately, as water resources are increasingly strained around the country, more and more people are realizing that water is going to be a precious resource in places we never think of as arid.

Next, we will consider H.R. 2397, the *American Manufacturing Leadership Act*, which is sponsored by the Research and Technology Chairwoman Stevens. This bill reauthorizes, updates, and improves the RAMI program, which was originally created by our colleagues Tom Reed and Joseph Kennedy in 2014. The RAMI program provides crucial support to American manufacturing that results in good, high-paying jobs for our constituents. I strongly support this bill, which is why I'm an original cosponsor, along with several of my Republican colleagues.

We will then take up four bills which addresses the issue of ocean acidification: H.R. 1237, the *COAST Research Act*, sponsored by Congresswoman Bonamici; H.R. 1716, the *Coastal Communities Ocean Acidification Act of 2019*, sponsored by Ms. Pingree; H.R. 1921, the *Ocean Acidification Innovation Act of 2019*, sponsored by Mr. Kilmer; and H.R. 988, the *NEAR Act of 2019*, sponsored by Mr. Posey. These bills collectively reauthorize and improve our government's research and response efforts to ocean acidification.

As we learned at the Environment Subcommittee hearing in March, the effects of ocean acidification are already showing up in our coastal communities. We need to have a much better understanding of this issue and how we can mitigate its effects to our coastal regions, and the bills before us today put us on the right path.

I look forward to a productive markup today and then moving these good bipartisan bills to the full House for passage. I also want to take a moment to thank our Ranking Member and his staff for their constructive input on the bills before us today. I can't promise that we will agree on every piece of legislation that comes before the Committee, but I will promise that we will try hard to do that to reach consensus whenever possible. That makes for better legislation, and ultimately makes it more likely that we can actually help address our constituents' needs.

[The prepared statement of Chairwoman Johnson follows:]

I want to welcome everyone to our first Full Committee markup of the Committee on Science, Space, and Technology for the 116th Congress. Today we meet to markup six good bipartisan bills. Each of these bills addresses critical issues facing our Nation.

First, we are considering H.R. 34, the *Energy and Water Research Integration Act of 2019*. I'll say more about this bill in a minute. For now, I'll just say that the bill addresses the complex ties between water and energy production in America.

As water resources are increasingly strained all across our country, I think it is critical that we better use and conserve those resources. I want to thank Ranking Member Lucas for being an original cosponsor of the bill and helping me to make a good bill even better. We both come from a part of the country where a drop of water has long been a precious commodity. Unfortunately, as water resources are increasingly strained around the country, more and more people are realizing that water is going to be a precious resource in places we never would think of as arid.

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We will then take up four bills which address the issue of ocean acidification:

H.R. 1237, the *COAST Research Act*, sponsored by Ms. Bonamici; H.R. 1716, the *Coastal Communities Ocean Acidification Act of 2019*, sponsored by Ms. Pingree; H.R. 1921, the *Ocean Acidification Innovation Act of 2019*, sponsored by Mr. Kilmer; and, H.R. 988, the *NEAR Act of 2019*, sponsored by Mr. Posey.

These bills collectively reauthorize and improve our government's research and response efforts to ocean acidification. As we learned at the Environment Subcommittee hearing in March, the effects of ocean acidification are already showing up in our coastal communities. We need to have a much better understanding of this issue and how we can mitigate its effects to our coastal regions, and the bills before us today put us on the right path.

I look forward to a productive markup today and then moving these good bipartisan bills to the full House for passage. I also want to take a moment to thank the Ranking Member and his staff for their constructive input on the bills before us today. I can't promise that we will agree on every piece of legislation that comes before the Committee, but I can promise that we will always work hard to reach consensus whenever possible. That makes for better legislation, and ultimately makes it more likely we can actually help address our constituents' needs.

Chairwoman JOHNSON. So I now recognize the Ranking Member to present his opening remarks.

Mr. LUCAS. Thank you, Chairman Johnson, for holding this markup.

Today, we'll consider six bipartisan bills. The first is H.R. 34, the *Energy and Water Research Integration Act*, a bill that aims to improve our understanding of the critical relationship between energy and water. Water and energy management is a regional issue with diverse challenges, ranging from agriculture and biofuels production to natural gas production. The energy-water nexus research authorized in this bill would improve efficiency and production in both sectors. That's why I cosponsored this legislation, and I'm committed to working with Chairwoman Johnson to move this bill forward.

I also want to thank the Chairwoman for working with us to incorporate comments from the Department of Energy and other stakeholders, which we've addressed through a bipartisan Manager's Amendment this morning.

Our second bill this morning is the *American Manufacturing Leadership Act*. This legislation reauthorizes and amends the bipartisan *Revitalize American Manufacturing and Innovation Act of 2014*. It includes important reforms to better coordinate centers for manufacturing innovation funded by all relevant agencies and incorporates GAO recommendations on the management. This bill also prioritizes manufacturing work force development and outreach to small and medium-sized manufacturers.

Next, we'll consider four bills addressing the issue of ocean acidification. H.R. 1237, the *COAST Act*, reauthorizes and updates the *Federal Ocean Acidification Research and Monitoring Act of 2009*. This bill will reauthorize ocean and coastal acidification research, monitoring, adoption programs, and improve coordination between Federal agencies exploring this challenge.

H.R. 1716, the *Coastal Communities Ocean Acidification Act of 2019*, directs the National Oceanic and Atmospheric Administration to study the impact of ocean acidification could have on our coastal communities and identify potential mitigation strategies.

H.R. 1921, the *Ocean Acidification Innovation Act of 2019*, creates a Federal prize competition to encourage innovative approaches to understanding this challenge or developing solutions to ocean acidification.

And finally, H.R. 988, the *NEAR Act of 2019*, sponsored by Congressman Posey, authorizes the National Academies of Science to conduct a study on the impacts of ocean acidification and their environmental stressors on the coastal waterways.

The research authorized in these four bills will bring us one step closer to finding innovative solutions to the challenge of ocean acidification and will improve the sustainability and overall health of our ecosystems. I want to thank the bipartisan group of Members representing coastal districts who developed this legislation.

And once again, thank you, Chairwoman Johnson, for holding today's markup, and I encourage the Members of the Committee to support these bills.

I yield back the balance of my time.

[The prepared statement of Mr. Lucas follows:]

Thank you, Chairman Johnson, for holding this mark-up. Today we will consider six bipartisan bills. The first is H.R. 34, the *Energy and Water Research Integration Act*, a bill that aims to improve our understanding of the critical relationship between energy and water.

Water and energy management is a regional issue with diverse challenges, ranging from agriculture and biofuels production to natural gas production.

The energy-water nexus research authorized in this bill could improve efficiency and production in both sectors. That's why I cosponsored this legislation, and I'm committed to working with Chairwoman Johnson to move this bill forward.

I also want to thank the Chairwoman for working with us to incorporate comments from the Department of Energy and other stakeholders, which we'll address through a bipartisan Manager's Amendment this morning.

Our second bill this morning is the American Manufacturing Leadership Act. This legislation reauthorizes and amends the bipartisan Revitalize American Manufacturing and Innovation (RAMI) Act of 2014.

It includes important reforms to better coordinate centers for manufacturing innovation funded by all relevant agencies and incorporates GAO recommendations on management. This bill also prioritizes manufacturing workforce development and outreach to small and medium-sized manufacturers.

Next, we will consider four bills addressing the issue of ocean acidification. H.R. 1237, the *COAST Act*, reauthorizes and updates the Federal Ocean Acidification Research and Monitoring Act of 2009.

This bill will reauthorize ocean and coastal acidification research, monitoring, and adaptation programs, and improve coordination between federal agencies exploring this challenge.

H.R. 1716, the *Coastal Communities Ocean Acidification Act of 2019*, directs the National Oceanic and Atmospheric Administration (NOAA) to study the impact ocean acidification could have on our coastal communities and identify potential mitigation strategies.

H.R. 1921, the *Ocean Acidification Innovation Act of 2019*, creates a federal prize competition to encourage innovative approaches to understanding this challenge or developing solutions to ocean acidification.

And finally, H.R. 988, the *NEAR Act of 2019*, sponsored by Congressman Posey, authorizes the National Academies of Science to conduct a study on the impacts of ocean acidification and other environmental stressors on coastal waterways.

The research authorized in these four bills will bring us one step closer to finding innovative solutions to the challenge of ocean acidification and will improve the sustainability and overall health of our ecosystems. I want to thank the bipartisan group of Members representing coastal districts who developed this legislation.

Once again, thank you Chairwoman Johnson for holding today's mark-up, and I encourage the Members of this Committee to support these bills.

I yield the balance of my time.

Chairwoman JOHNSON. Thank you very much.

I yield back my time.

Chairwoman JOHNSON. Thank you very much, Mrs. Fletcher.

Any further comments?

Hearing none, all those—the vote occur on the amendment.

All those in favor, say aye.

Anyone opposing, say no.

Hearing none, the motion carries.

Are there any other amendments?

If no, then a reporting quorum being present, I move that the Committee on Science, Space, and Technology report H.R. 1237, as amended, to the House with the recommendation that the bill be approved.

Those in favor of the motion will signify by saying aye.

Opposed, no.

The ayes have it, and the bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table, and I asking animus consent that the staff be authorized to make any necessary technical and conforming changes to the bill. Without objection, so ordered.

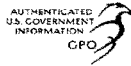
Members will have 2 subsequent calendar days in which to supplementary minority or additional views on the measure.

H.R. 1716

Chairwoman JOHNSON. We now come to the consideration of 1716, the *Coastal Communities Ocean Acidification Act of 2019*. The clerk will report the bill.

The CLERK. H.R. 1716, a bill to direct the Secretary of Commerce—

[The bill follows:]



116TH CONGRESS
1ST SESSION

H. R. 1716

To direct the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration, to conduct coastal community vulnerability assessments related to ocean acidification, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 13, 2019

Ms. PINGREE (for herself, Mr. ROONEY of Florida, Mr. HUFFMAN, Ms. BONAMICI, Mr. KING of New York, Mr. YOUNG, and Mr. THOMPSON of California) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

To direct the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration, to conduct coastal community vulnerability assessments related to ocean acidification, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 SECTION 1. SHORT TITLE.

4 This Act may be cited as the “Coastal Communities
5 Ocean Acidification Act of 2019”.

1 **SEC. 2. COASTAL COMMUNITY VULNERABILITY ASSES-**
2 **MENT.**

3 (a) IN GENERAL.—Section 12406 of the Federal
4 Ocean Acidification Research And Monitoring Act of 2009
5 (33 U.S.C. 3705) is amended—

6 (1) by redesignating subsection (b) as sub-
7 section (d); and

8 (2) by inserting after subsection (a) the fol-
9 lowing:

10 “(b) COMMUNITY VULNERABILITY ASSESSMENT.—

11 “(1) IN GENERAL.—The Secretary, through the
12 program established under subsection (a), shall con-
13 duct an ocean acidification coastal community vul-
14 nerability assessment, and issue a corresponding
15 public report, that shall be updated at least once
16 every 7 years.

17 “(2) REQUIREMENTS.—The assessment con-
18 ducted under paragraph (1) shall—

19 “(A) identify the United States coastal
20 communities, including island communities, low-
21 population rural communities, and subsistence
22 communities, that are most dependent on coast-
23 al and ocean resources that may be impacted by
24 ocean acidification;

25 “(B) assess the nature of those commu-
26 nities’ social and economic vulnerabilities;

1 “(C) identify the ocean acidification im-
2 pacts that might harm those communities, in-
3 cluding impacts from changes in ocean and
4 coastal marine resources that are not managed
5 by the Federal Government;

6 “(D) identify key knowledge gaps where
7 research could be devoted to better understand
8 the possible impacts of ocean acidification on
9 these vulnerable communities, the risks and
10 threats facing these communities, and possible
11 adaptation strategies for these communities;
12 and

13 “(E) be conducted in collaboration with ex-
14 perts who are familiar with the unique eco-
15 nomic, social, ecological, geographic, and re-
16 source concerns of the Nation’s coastal commu-
17 nities, including representatives from the Na-
18 tional Oceanic and Atmospheric Administra-
19 tion’s National Marine Fisheries Service and
20 the Office for Coastal Management.

21 “(c) SUPPORT FOR STATE AND LOCAL VULNER-
22 ABILITY ASSESSMENTS AND STRATEGIC RESEARCH
23 PLANNING.—In carrying out the program established
24 under subsection (a), the Secretary shall collaborate with
25 State and local government entities that are conducting

1 or have completed vulnerability assessments, strategic re-
2 search planning, or other similar activities related to ocean
3 acidification and its impacts on coastal communities, for
4 the purpose of—

5 “(1) determining whether such activities can be
6 used as a model for other communities; and

7 “(2) identifying opportunities for the National
8 Oceanic and Atmospheric Administration to support
9 such activities.”.

10 (b) ONGOING INPUT MECHANISM.—Section
11 12404(b)(5) of the Federal Ocean Acidification Research
12 And Monitoring Act of 2009 (33 U.S.C. 3703(b)(5)) is
13 amended by adding at the end before the period the fol-
14 lowing: “, also including an ongoing mechanism that al-
15 lows affected industry members, coastal stakeholders, non-
16 Federal resource managers, coastal acidification networks,
17 and scientific experts not employed by the Federal Govern-
18 ment to provide input on research, data, and monitoring
19 that is necessary to support on-the-ground management,
20 decisionmaking, and adaptation related to ocean acidifica-
21 tion and its impacts”.

22 (c) STRATEGIC RESEARCH PLAN.—Section 12405(b)
23 of the Federal Ocean Acidification Research And Moni-
24 toring Act of 2009 (33 U.S.C. 3704(b)) is amended—

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1 (1) in paragraph (8), by striking “and” after
2 the semicolon;

3 (2) in paragraph (9), by striking the period at
4 the end and inserting “; and”; and

5 (3) by adding at the end the following:

6 “(10) make recommendations for research that
7 should be conducted, including in the social sciences
8 and economics, to address the key knowledge gaps
9 identified in the community vulnerability assessment
10 report conducted under subsection (b) of section
11 12406.”.

12 (d) REPORT ON SUPPORT FOR STATE AND LOCAL
13 VULNERABILITY ASSESSMENTS AND STRATEGIC RE-
14 SEARCH PLANNING.—Not later than 180 days after the
15 date of the enactment of this Act, the Administrator of
16 the National Oceanic and Atmospheric Administration
17 shall submit to Congress a report on the efforts of the
18 National Oceanic and Atmospheric Administration to sup-
19 port State and local community vulnerability assessments
20 and strategic research planning, pursuant to section
21 12406(c) of the Federal Ocean Acidification Research And
22 Monitoring Act of 2009 (as added by subsection (a) of
23 this section).

○

Chairwoman JOHNSON. Without objection, the bill is considered as read and open to amendment at any point. And I recognize Ms. Bonamici to make comments on the bill.

Anyone wish to be recognized on the bill?

We'll go to amendments then. We will proceed now with amendments in the order of the roster.

The first amendment on the roster is an amendment in the nature of a substitute offered by the Chair. The clerk will report.

The CLERK. Amendment number 1 offered by Chairwoman Johnson.

[The amendment of Chairwoman Johnson follows:]

**AMENDMENT IN THE NATURE OF A SUBSTITUTE
TO H.R. 1716
OFFERED BY MS. JOHNSON**

Strike all after the enacting clause and insert the following:

1 SECTION 1. SHORT TITLE.

2 This Act may be cited as the “Coastal Communities
3 Ocean Acidification Act of 2019”.

**4 SEC. 2. COASTAL COMMUNITY VULNERABILITY ASSESS-
5 MENT.**

6 (a) IN GENERAL.—Section 12406 of the Federal
7 Ocean Acidification Research And Monitoring Act of 2009
8 (33 U.S.C. 3705) is amended—

9 (1) by redesignating subsection (b) as sub-
10 section (d); and

11 (2) by inserting after subsection (a) the fol-
12 lowing:

13 “(b) COMMUNITY VULNERABILITY ASSESSMENT.—

14 “(1) IN GENERAL.—The Secretary, through the
15 program established under subsection (a), shall con-
16 duct an ocean acidification coastal community vul-
17 nerability assessment, and issue a corresponding

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1 public report, which shall be updated at least once
2 every 7 years.

3 “(2) REQUIREMENTS.—The assessment con-
4 ducted under paragraph (1) shall—

5 “(A) identify the United States coastal
6 communities, including island communities, low-
7 population rural communities, and subsistence
8 communities, that are most dependent on coast-
9 al and ocean resources that may be impacted by
10 ocean acidification;

11 “(B) assess the nature of the social and
12 economic vulnerabilities of those communities;

13 “(C) identify the ocean acidification im-
14 pacts that might harm those communities, in-
15 cluding impacts from changes in ocean and
16 coastal marine resources that are not managed
17 by the Federal Government;

18 “(D) identify key knowledge gaps where
19 research could be devoted to better understand
20 the possible impacts of ocean acidification on
21 those communities, the risks and threats facing
22 those communities, and possible adaptation
23 strategies for those communities; and

24 “(E) be conducted in collaboration with ex-
25 perts, indigenous knowledge groups, and stake-

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1 holders who are familiar with the unique eco-
2 nomic, social, ecological, geographic, and re-
3 source concerns of coastal communities in the
4 United States, including representatives of—

5 “(i) the National Marine Fisheries
6 Service and the Office for Coastal Manage-
7 ment of the National Oceanic and Atmos-
8 pheric Administration;

9 “(ii) National Integrated Coastal and
10 Ocean Observation System regional infor-
11 mation coordination entities established
12 under section 12304(c)(4) of the Inte-
13 grated Coastal and Ocean Observation
14 System Act of 2009 (33 U.S.C.
15 3603(c)(4));

16 “(iii) regional ocean acidification net-
17 works; and

18 “(iv) State sea grant programs (as de-
19 fined in section 203 of the National Sea
20 Grant College Program Act (33 U.S.C.
21 1122)).

22 “(c) SUPPORT FOR STATE AND LOCAL VULNER-
23 ABILITY ASSESSMENTS AND STRATEGIC RESEARCH
24 PLANNING.—In carrying out the program established
25 under subsection (a), the Secretary shall collaborate with

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1 State, local, and tribal government entities that are con-
2 ducting or have completed vulnerability assessments, stra-
3 tegic research planning, or other similar activities related
4 to ocean acidification and its impacts on coastal commu-
5 nities, for the purpose of—

6 “(1) determining whether such activities can be
7 used as a model for other communities; and

8 “(2) identifying opportunities for the National
9 Oceanic and Atmospheric Administration and other
10 relevant Federal agencies to support such activi-
11 ties.”.

12 (b) ONGOING INPUT MECHANISM.—Section
13 12404(b)(5) of the Federal Ocean Acidification Research
14 And Monitoring Act of 2009 (33 U.S.C. 3703(b)(5)) is
15 amended—

16 (1) by striking “including information” and in-
17 serting the following: “including—

18 “(A) information”;

19 (2) by striking the period at the end and insert-
20 ing “; and”; and

21 (3) by adding at the end the following:

22 “(B) an ongoing mechanism that allows af-
23 fected industry members, coastal stakeholders,
24 non-Federal resource managers, community
25 acidification networks, indigenous knowledge

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1 groups, and scientific experts not employed by
2 the Federal Government to provide input on re-
3 search, data, and monitoring that is necessary
4 to support on-the-ground management, deci-
5 sionmaking, and adaptation related to ocean
6 acidification and its impacts.”.

7 (c) STRATEGIC RESEARCH PLAN.—Section 12405 of
8 the Federal Ocean Acidification Research And Monitoring
9 Act of 2009 (33 U.S.C. 3704) is amended—

10 (1) in subsection (b)—

11 (A) in paragraph (8), by striking “and”
12 after the semicolon;

13 (B) in paragraph (9), by striking the pe-
14 riod at the end and inserting “; and”; and

15 (C) by adding at the end the following:

16 “(10) make recommendations for research that
17 should be conducted, including in the social sciences
18 and economics, to address the key knowledge gaps
19 identified in the community vulnerability assessment
20 report conducted under section 12406(b).”; and

21 (2) in subsection (c), by inserting “, tribal gov-
22 ernments, indigenous knowledge groups,” after “in-
23 dustry”.

24 (d) REPORT ON SUPPORT FOR STATE AND LOCAL
25 VULNERABILITY ASSESSMENTS AND STRATEGIC RE-

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1 SEARCH PLANNING.—Not later than 180 days after the
2 date of the enactment of this Act, the Administrator of
3 the National Oceanic and Atmospheric Administration
4 shall submit to Congress a report on the efforts of the
5 National Oceanic and Atmospheric Administration to sup-
6 port State, local, and tribal community vulnerability as-
7 sessments, strategic research and planning, and moni-
8 toring needs, pursuant to section 12406(c) of the Federal
9 Ocean Acidification Research And Monitoring Act of 2009
10 (as added by subsection (a) of this section).



Chairwoman JOHNSON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize myself for 5 minutes to explain the amendment.

The amendment is a simple strike and replace with the entire text of the Senate companion bill, Senate Bill 778. The Senate bill, sponsored by Senator Murkowski, has a few minor technical differences from the original text of Ms. Pingree's H.R. 1716. In addition, it includes references to tribal governments and adds three key expert groups to the list of entities required to participate in the regional vulnerability assessments.

Ms. Pingree and I worked together on offering this amendment because it's important to ensure that our Nation's many coastal indigenous groups and tribal governments are involved in ocean acidification vulnerability assessments. It is also important that these vulnerability assessments are conducted in a collaboration with representatives from the appropriate experts already working on this issue, which is why the Senate version of the bill includes the national Integrated Coastal and Ocean Observation System, Regional Information Coordination Entities, the States' Sea Grant programs, and the Regional Ocean Acidification Networks. These minor differences in the amendment makes sense and improve the overall bill. By harmonizing Ms. Pingree's bill with the Senate version, this amendment will prepare the bill for eventual passage into law.

Now, is there any further discussion on the amendment?

Mr. LUCAS. Madam Chair?

Chairwoman JOHNSON. Mr. Lucas.

Mr. LUCAS. Thank you, Chairwoman Johnson.

This amendment strikes and replaces the text of H.R. 1716 with text from a companion legislation introduced in the Senate. This amendment was drafted on a bipartisan, bicameral basis to clarify NOAA's responsibility to research the impacts of ocean acidification on coastal communities. I encourage my colleagues to support this amendment, and I yield back.

Chairwoman JOHNSON. Thank you, Mr. Lucas.

Are there any other comments on this amendment?

Hearing none, then we will proceed with the next amendment—with the next amendment and vote on this amendment as—after it has been amended. And so we have the González-Colón amendment on the roster and offered by the gentlelady from Puerto Rico, and she is recognized to offer the amendment.

Ms. GONZÁLEZ-COLÓN. Madam Chair, I have an amendment at the desk.

Chairwoman JOHNSON. The clerk will report the amendment.

The CLERK. Amendment number 2 offered by Ms. González-Colón.

[The amendment of Ms. González-Colón follows:]

**AMENDMENT TO THE AMENDMENT IN THE
NATURE OF A SUBSTITUTE TO H.R. 1716
OFFERED BY MISS GONZÁLEZ-COLÓN OF PUERTO
RICO**

Page 1, after line 3, add the following (and make such conforming changes as may be necessary):

1 SEC. 2. STATE AND UNITED STATES DEFINED.

2 Section 12403 of the Federal Ocean Acidification Re-
3 search And Monitoring Act of 2009 (33 U.S.C. 3702) is
4 amended—

5 (1) by redesignating paragraph (3) as para-
6 graph (4);

7 (2) by inserting after paragraph (2) the fol-
8 lowing:

9 “(3) STATE.—The term ‘State’ means each
10 State of the United States, the District of Columbia,
11 the Commonwealth of Puerto Rico, American
12 Samoa, Guam, the Commonwealth of the Northern
13 Mariana Islands, the Virgin Islands of the United
14 States, and any other territory or possession of the
15 United States.”; and

16 (3) by adding at the end the following:

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1 “(5) UNITED STATES.—The term ‘United
2 States’ means the States, collectively.”.



Chairwoman JOHNSON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize the gentlelady for 5 minutes to explain her amendment.

Ms. GONZÁLEZ-COLÓN. Thank you, Madam Chairwoman Johnson and Ranking Member Lucas, for holding this markup and including all of the bills that are being considered today.

Ocean acidification affects all coastal jurisdictions. In the case of Puerto Rico, being an island community, protecting our coast, as well as our coastal marine resources, is one of the utmost importance for the stability of the economy and well-being of the island residents as well.

H.R. 1716, the *Coastal Community Ocean Acidification Act*, will be instrumental in understanding the impact of this phenomenon by directing the National Oceanic and Atmospheric Administration, NOAA, to conduct coastal community vulnerability assessments related to ocean acidification. These assessments further require NOAA to identify coastal communities that might be impacted and are most dependent on coastal and ocean resources in collaboration with State and local officials.

My amendment is really simple. It's essentially including a State definition to clarify the inclusion of the five U.S. territories in this bill, including Puerto Rico. In this important assessment and initiative, it is required to include all of our jurisdictions. This will help us to continue to educate all U.S. jurisdictions on how to better prepare for the consequences and analyze the effects of ocean acidification.

And I want to first say—commend Ms. Pingree for her leadership on this issue and Ms. Bonamici for including the amendment that she just read a few minutes ago, including all territories into consideration of the board. I think that's—that should be the focus of the Committee, not leaving any territory behind in any legislation.

With that, I look forward to working with all of you, and I support this amendment, as well as the bill.

So I yield back.

Chairwoman JOHNSON. Thank you, Ms. González-Colón.

Are there other comments on this amendment?

Hearing none, then the vote occurs on the amendment.

All those in favor, say aye.

Any opposes, no?

The ayes have it. The amendment is adopted.

We now have the Wexton amendment, which is the next amendment on the roster, to be offered by the gentlelady from Virginia. She is recognized—well, the clerk will read the amendment.

Ms. WEXTON. Thank you, Madam Chairwoman. I have an amendment at the desk.

The CLERK. Amendment number 3 offered by Ms. Wexton.

[The amendment of Ms. Wexton follows:]

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**AMENDMENT TO THE AMENDMENT IN THE
NATURE OF A SUBSTITUTE TO H.R. 1716
OFFERED BY MS. WEXTON OF VIRGINIA**

Page 2, line 12, insert before the semicolon at the end the following: “, including the economic impact on local or regional commercial fisheries and recreational opportunities”.



Chairwoman JOHNSON. I ask unanimous consent to dispense with the reading, and without objection, so ordered.

I recognize the gentlelady to explain her amendment, Ms. Wexton of Virginia.

Ms. WEXTON. Thank you, Madam Chairwoman, for yielding me time to explain this amendment. It's a very simple one. It just adds the economic impact on commercial fisheries and outdoor recreation to the assessment by NOAA on vulnerabilities of communities affected by ocean acidification.

The economies of coastal States and their communities rely on the success of commercial fisheries and outdoor recreation. These industries support millions of jobs and generate billions of dollars in revenue nationally, and many are family owned. In my home State of Virginia, the Chesapeake Bay has one of the largest commercial shellfish industries in the United States and supports a vibrant recreation economy. However, the bay is likely to feel the effects of ocean acidification more quickly than other regions due to its unique characteristics.

It's important that we capture the economic impact on local fisheries and outdoor recreation as we look at how ocean acidification threatens coastal States. This amendment is supported by the Seafood Harvesters of America, who represent commercial fishermen and women throughout the United States.

And I urge my colleagues to support this amendment, and I yield back the remainder of my time.

Chairwoman JOHNSON. Thank you very much, Ms. Wexton.

Any further discussion on the amendment?

Mr. LUCAS. Madam Chair?

Chairwoman JOHNSON. Mr. Lucas.

Mr. LUCAS. Thank you, Chairwoman Johnson.

This amendment, as was noted, simply clarifies the impact of ocean acidification on commercial fisheries. This should also be considered when evaluating the impact of ocean acidification on coastal communities. This amendment addresses an important coastal industry, which experiences direct effects from ocean acidification.

I encourage my colleagues to support this amendment, and yield back, Madam Chair.

Chairwoman JOHNSON. Thank you, Mr. Lucas.

Any further comments on the amendment?

Hearing none, then the vote occurs on the amendment.

All those in favor, say aye.

Those opposed, nay.

The amendment is adopted.

We now will move to the next amendment. The next amendment on the roster is an amendment offered by the gentlelady from Oregon, Ms. Bonamici, and she is recognized to offer the amendment.

Ms. BONAMICI. Thank you, Chairwoman Johnson. I have an amendment at the desk.

Chairwoman JOHNSON. The clerk will report the amendment.

The CLERK. Amendment number 4 offered by Ms. Bonamici.

[The amendment of Ms. Bonamici follows:]

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**AMENDMENT TO THE AMENDMENT IN THE
NATURE OF A SUBSTITUTE TO H.R. 1716
OFFERED BY MS. BONAMICI OF OREGON**

Page 5, after line 23, insert the following (and make such conforming changes as may be necessary):

1 (d) AUTHORIZATION OF APPROPRIATIONS.—Section
2 12409(a) of the Federal Ocean Acidification Research
3 And Monitoring Act of 2009 (33 U.S.C. 3708(a)) is
4 amended to read as follows:

5 “(a) NOAA.—There are authorized to be appro-
6 priated to the National Oceanic and Atmospheric Adminis-
7 tration to carry out the purposes of this subtitle
8 \$2,700,000 for each of fiscal years 2020 through 2024.”.



Chairwoman JOHNSON. I ask unanimous consent to dispense with the reading. Without objection, so ordered.

I recognize the gentlelady for 5 minutes to explain the amendment.

Ms. BONAMICI. Thank you, Chairwoman Johnson.

I'm proud to be an original cosponsor of Congresswoman Pingree's *Coastal Communities Ocean Acidification Act*. The bill would direct NOAA to conduct an ocean acidification coastal community vulnerability assessment. The assessment would identify coastal communities, island communities, low-population rural communities, and subsistence communities dependent on coastal and ocean resources that may be affected by ocean acidification. The study would also identify possible adaptation strategies.

Importantly, the bill directs NOAA to work with States like my home State of Oregon that are already developing ocean acidification response plans.

During the Environment Subcommittee's hearing on ocean health in February, Dr. Sarah Cooley from Ocean Conservancy highlighted a 2012 report from the National Marine Sanctuaries Foundation. Based on conversations with program managers at various Federal agencies, the report estimated a need for approximately \$95 million for all Federal ocean acidification research and monitoring by Fiscal Year 2020.

In Fiscal Year 2019, the NOAA Integrated Ocean Acidification Program received only \$12 million, which is obviously insufficient to address the pervasive effects of ocean acidification. I hope that my *COAST Research Act* can address some of the gaps, but there still must be a separate authorization for vulnerability studies.

My amendment would provide NOAA with a modest increase above the current spending level on these studies by authorizing \$2.7 million annually for fiscal years 2020 through 2024. I have coordinated with the Chairwoman, Congresswoman Pingree, and the other co-leads on this bill—on this amendment, and I'm hopeful that this additional authorization can help improve our understanding of the socioeconomic effects of ocean acidification and help support our communities.

The Pacific coast, including my home State of Oregon, is more vulnerable to severe changes in ocean chemistry than many other coastal regions, and we have already experienced many of the devastating effects of ocean acidification. But ocean acidification is a global phenomenon, and we must strengthen our understanding of the socioeconomic effects on a range of geographically diverse coastal communities.

I want to thank Congresswoman Pingree and the other—others who worked on this bill for her leadership, and I urge my colleagues to support this amendment and the underlying bill.

I yield back the balance of my time.

Chairwoman JOHNSON. Thank you, Ms. Bonamici.

Any further comments?

Mr. LUCAS. Madam Chair?

Chairwoman JOHNSON. Mr. Lucas.

Mr. LUCAS. Thank you, Chairwoman Johnson.

This amendment simply includes an authorization of appropriations of \$2.7 million annually for the *Coastal Communities Ocean*

Acidification Act, and I encourage my colleagues to support this amendment and yield back.

Chairwoman JOHNSON. Thank you very much.

Any further comments?

Then—the vote then will be on the amendment.

All those in favor, say aye.

Those opposed, nay.

Hearing none, the amendment is adopted.

Now, we'll go back to the original substitute amendment and vote on that.

Are there any other amendments?

If no—if not, then, then the vote will occur on the Chair's amendment in the nature of a substitute that includes the actions that we've just taken.

All those in favor, say aye.

Those opposed, nay.

Hearing none, then the substitute is adopted.

A reporting quorum being present, I move that the Committee on Science, Space, and Technology report H.R. 1716, as amended, to the House with the recommendation that the bill be approved.

Those in favor of the motion by simply saying aye.

Those opposed, nay.

The ayes have it, and the bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table, and I ask unanimous consent that the staff be authorized to make any necessary technical and conforming changes to the bill. Without objection, so ordered.

The Members will have 2 subsequent calendar days in which to submit supplemental minority or additional views on the measure.

H.R. 1921

Chairwoman JOHNSON. We are now going to move to H.R. 1921 for consideration. That's the *Ocean Acidification Innovation Act of 2019*, and the clerk will report the bill.

The CLERK. Committee print of H.R. 1921, section 1, short title—

[The bill follows:]

